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Applicant : Huan-Cheng Chang et al. Art Unit : Unknown
Serial No. : 10/726,071 Examiner : Unknown
Filed : December 1, 2003
Title : NANOPARTICLE ION DETECTION

Commissioner for Patents
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INFORMATION DISCLOSURE STATEMENT

Applicants disclose the documents listed on the attached form PTO-1449.

This statement is being filed before the receipt of a first Office action on the merits.

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Respectfully submitted,

Date: 3-25-04

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Substitute Form PTO-1449
(Modified)U.S. Department of Commerce
Patent and Trademark OfficeAttorney's Docket No.
08919-109001Application No.
10/726,071

**Information Disclosure Statement
by Applicant**
MAR 2 9 2004 (Use several sheets if necessary)
(37 CFR §1.98(e))

Applicant
Huan-Cheng Chang et al.Filing Date
December 1, 2003

Group Art Unit

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AA	R. E. March et al. "Review of the Development of the Quadrupole Ion Trap". Quadrupole Storage Mass Spectrometer, pp. 6-7, 13, Wiley, 1989.
	AB	R. F. Wuerker et al. "Electrodynamic Containment of Charged Particles". Journal of Applied Physics 30(3):342-349, 441-442.
	AC	R. E. March et al. "Nonlinear Ion Traps". Practical Aspects of Ion-Trap Mass Spectrometry, CRC Press, Boca Raton, FL, Vol. 2, pp. 153-166, 1995.
	AD	I.S. Gilmore et al. "Ion detection efficiency in SIMS: dependencies on energy, mass and composition for microchannel plates used in mass spectrometry". International Journal of Mass Spectrometry 202:217-229, 2000.
	AE	R. E. March et al. "Quadrupole ion trap mass spectrometry: a view at the turn of the century". International Journal of Mass Spectrometry 200:285-312, 2000.
	AF	U. P. Schlunegger et al. "Frequency Scan for the Analysis of High Mass Ions Generated by Matrix-assisted Laser Desorption/Ionization in a Paul Trap". Rapid Communications in Mass Spectrometry 13:1792-1796, 1999.
	AG	S. Berkenkamp et al. "Infrared MALDI Mass Spectrometry of Large Nucleic Acids". Science 281:260-262, July 10, 1998.
	AH	M. A. Park et al. "An Inductive Detector for Time-of-flight Mass Spectrometry". Rapid Communications in Mass Spectrometry 8:317-322, 1994.
	AI	D. C. Imrie et al. "A Faraday Cup Detector for High-mass Ions in Matrix-assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometry". Rapid Communications in Mass Spectrometry 9:1293-1296, 1995.
	AJ	U. Bahr et al. "A charge detector for time-of-flight mass analysis of high mass ions produced by matrix-assisted laser desorption/ionization (MALDI)". International Journal of Mass Spectrometry and Ion Processes 153:9-21, 1996.
	AK	S. D. Fuerstenu et al. "Molecular Weight Determination of Megadalton DNA Electrospray Ions Using Charge Detection Time-of-flight Mass Spectrometry". Rapid Communications in Mass Spectrometry 9:1528-1538, 1995.
	AL	W. H. Benner. "A Gated Electrostatic Ion Trap To Repetitiously Measure the Charge and m/z of Large Electrospray Ions". Anal. Chem. 69:4162-4168, 1997.
	AM	J. C. Schultz et al. "Mass Determination of Megadalton-DNA Electrospray Ions Using Charge Detection Mass Spectrometry". J. Amer. Soc. Mass Spectrom. 9:305-313, 1998.
	AN	D. Twerenbold. "Biopolymer mass spectrometer with cryogenic particle detectors". Nuclear Instruments and Methods in Physics Research 370 A:253-255, 1996.
	AO	G. C. Hilton et al. "Impact energy measurement in time-of-flight mass spectrometry with cryogenic microcalorimeters". Nature 391:672-675, February 12, 1998.
	AP	M. Frank et al. "Energy-Sensitive Cryogenic Detectors for High-Mass Biomolecule Mass Spectrometry". Mass Spectrometry Reviews 18:155-186, 1999.
	AQ	M. Frank. "Mass spectrometry with cryogenic detectors". Nuclear Instruments and Methods in Physics Research 444 A:375-384, 2000.
	AR	Y. Cai et al. "Single-Particle Mass Spectrometry of Polystyrene Microspheres and Diamond Nanocrystals". Analytical Chemistry 74(1):232-238, January 1, 2002.
	AS	Y. Cai et al. "Calibration of an audio-frequency ion trap mass spectrometer". International Journal of Mass Spectrometry 214:63-73, 2002.

Examiner Signature

Date Considered

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Form PTO-1449 (Modified)		U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 08919-109001	Application No. 10/726,071
Information Disclosure Statement by Applicant <small>(use several sheets if necessary)</small> <small>(37 CFR §1.98(b))</small>		Applicant Huan-Cheng Chang et al. Filing Date December 1, 2003		

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	AT	H. C. Van de Hulst. "Conservation of Energy and Momentum". Light Scattering by Small Particles, pp. 11-12, Wiley 1957.
	AU	Y. Cai et al. "Ion Trap Mass Spectrometry of Fluorescently Labeled Nanoparticles". Analytical Chemistry, American Chemical Society, January 23, 2003, pp. A-G.
	AV	R. P. Haugland. "Molecular Probes: Material Safety Data Sheet". Handbook of Fluorescent Probes and Research Chemicals, 6 th Edition, Molecular Probes, Eugene, 1996.
	AW	X. S. Xie et al. "Optical Studies of Single Molecules at Room Temperature". Annu. Rec. Phys. Chem 49:441-48, 1998.
	AX	E. J. Davis. "A History of Single Aerosol Particle Levitation". Aerosol Science and Technology 26(3): 212-254, March 1997.
	AY	W. B. Whitten et al. "Single-Molecule Detection Limits in Levitated Microdroplets". Anal. Chem. 63:1027-1031, 1991.
	AZ	J. T. Khoury et al. "Pulsed Fluorescence Measurements of Trapped Molecular Ions with Zero Background Detection". J Am Soc Mass Spectrom 13:636-708, 2002.
	AAA	Y. Cai et al. "Optical Detection and Charge-State Analysis of MALDI-Generated Particles with Molecular Masses Larger than 4 MDa". Anal. Chem. 74:4434-4440, 2002.
	ABB	J. Ting. "High-voltage current-feedback amplifier is speedy". EDN Magazine, pp. 136-137, April 25, 2001.
	ACC	C. Dass. "Comparison of Different Ionization Methods". Principles and Practices of Biological Mass Spectrometry". Pp. 49, Wiley, 2001.
	ADD	D. C. Schremer et al. "Detection of High Molecular Weight Narrow Polydisperse Polymers up to 1.5 Million Daltons by MALDI Mass Spectrometry". Anal. Chem. 68:2721-2725, 1996.
	AEE	M. Scalf et al. "Controlling Charge States of Large Ions". Science 283:194-197, January 8, 1999.
	AFF	L. Ding et al. "A simulation study of the digital ion trap mass spectrometer". International Journal of Mass Spectrometry 221:117-138, 2002.
	AGG	J. Qin et al. "A Practical Ion Trap Mass Spectrometer for the Analysis of Peptides by Matrix-Assisted Laser Desorption/Ionization". Anal. Chem. 68:1784-1791, 1996.
	AHH	C. Weil et al. "Multiparticle Simulation of Ion Injection into the Quadrupole Ion Trap Under the Influence of Helium Buffer Gas Using Short Injection Times and DC Pulse Potentials". Rapid Communications in Mass Spectrometry 10:742-750, 1996.
	AII	V. M. Doroshenko et al. "Injection of Externally Generated Ions into an Increasing Trapping Field of a Quadrupole Ion Trap Mass Spectrometer". Journal of Mass Spectrometry 32:602-615, 1997.
	AJJ	L. He et al. "Simulation of External Ion Injection, Cooling and Extraction Processes with SIMION 6.0 for the Ion Trap/Reflectron Time-of-flight Mass Spectrometer". Rapid Communications in Mass Spectrometry 11:1467-1477, 1997.
	AKK	S. T. Quarmby et al. "Fundamental studies of ion injection and trapping of electrosprayed ion on a quadrupole ion trap". International Journal of Mass Spectrometry 190/191:81-102, 1999.
	ALL	S. Steiner et al. "Influence of Trapping Parameters on Ion Injection and Dissociation Efficiencies in a Quadrupole Mass Filter/Ion Trap Tandem Instrument". Journal of Mass Spectrometry 34:511-520, 1999.
	AMM	K. Yoshinari. "Theoretical and numerical analysis of the behavior of ions injected into a quadrupole ion trap mass spectrometer". Rapid Communications in Mass Spectrometry 14:215-223, 2000.

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	ANN	A. D. Appelhans et al. "Measurement of external ion injection and trapping efficiency in the ion trap mass spectrometer and comparison with a predictive model". International Journal of Mass Spectrometry 216:269-284, 2002.
	AOO	C. Marinach et al. "Simulation of ion beam and optimization of orthogonal tandem ion trap/reflector time-of-flight mass spectrometry". International Journal of Mass Spectrometry 213:45-62, 2002.
	APP	H.-P. Reiser et al. "Measurement of Kinetic Energies of Ions Ejected from a Quadrupole Ion Trap". International Journal of Mass Spectrometry and Ion Processes 106:237-247, 1991.
	AQQ	B. E. Dahneke. "Slip Correction Factors for Nonspherical Bodies-II Free Molecule Flow". Aerosol Science 4:147-161, 1973.
	ARR	G. Hars et al. "Application of quadrupole ion trap for the accurate mass determination of submicron size charged particles". Journal of Applied Physics 77(9):4245-4250, May 1, 1995.
	ASS	Y. Zerega et al. "A dual quadrupole ion trap mass spectrometer". International Journal of Mass Spectrometry 190/191:59-68, 1999.
	ATT	M. A. Tito et al. "Electrospray Time-of-flight Mass Spectrometry of the Intact MS2 Virus Capsid". Journal of American Chemical Society 122:3550-3551, 2000.
	AUU	A. A. Rostom et al. "Detection and selective dissociation of intact ribosomes in a mass spectrometer". PNAS 97(10):5185-5190, May 9, 2000.
	AVV	S. D. Fuerstenau et al. "Mass Spectrometry in an Intact Virus". Angew. Chem. Int. Ed. 40(3): 542-544, 2001.
	AWW	M. D. Barnes et al. "Detection of Single Rhodamine 6G Molecules in Levitated Microdroplets". Anal. Chem. 65:2360-2365, 1993.
	AXX	S. Schlemmer et al. "Nondestructive high-resolution and absolute mass determination of single charged particles in a three-dimensional quadrupole trap". Journal of Applied Physics 90(10):5410-5418, November 15, 2001.
	AYY	S. Arnold et al. "Convertible electrodynamic levitator trap to quasielectrostatic levitator for microparticle nucleation studies". Review of Scientific Instruments 70(2): 1473-1477, February 1999.
	AZZ	S.-C. Wang et al. "Plastic Microchip Electrophoresis with Analyte Velocity Modulation. Application to Fluorescence Background Rejection". Anal. Chem. 72:1448-1452, 2000.
	AAAA	J. R. Taylor et al. "Probing Specific Sequences on Single DNA Molecules with Bioconjugated Fluorescent Nanoparticles". Anal. Chem. 72:1979-1986, 2000.

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